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BY THE U.S. GENERAL ACCOUNTING OFFICE

Report To The Secretary Of The Army

COMPLETED 30

The Army Can Better Integrate Manpower, Personnel, And Training Into The Weapon Systems Acquisition Process

The Army must effectively integrate manpower, personnel, and training (MPT) needs into its weapon systems acquisition process to ensure that when the weapon systems are deployed, they can be satisfactorily operated and maintained. Many problems in this area identified by the Army in a 1980 study remain. Although the Army has spent considerable effort over the past 4 years identifying MPT problems and studying methodologies for improvement, it has lacked a comprehensive Army-wide plan for resolving the problems.

GAO is recommending that the Secretary of the Army ensure that the Deputy Chief of Staff for Personnel has the authority and responsibility to develop and implement such a plan and establish and implement detailed procedures and controls to improve MPT integration.

The Office of the Secretary of Defense agreed with GAO's recommendations and is taking corrective actions.

ORIGINAL

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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

NATIONAL SECURITY AND
INTERNATIONAL AFFAIRS DIVISION

B-217759

The Honorable John O. Marsh
The Secretary of the Army

Dear Mr. Secretary:

We reviewed the Department of the Army's efforts to improve the integration of manpower, personnel, and training (MPT) into its weapon systems acquisition process. We performed our review because (1) MPT is critical in determining weapon systems affordability and supportability and (2) Army studies indicated that the Army lacked an overall plan and a focus for correcting the MPT problems it has been aware of for several years.

Our objectives were to determine whether

--the Army had established an overall plan and a focus for correcting these problems and whether the Army's corrective actions were adequate and

--the role of the Deputy Chief of Staff for Personnel (DCSPER)--the office responsible for ensuring that MPT is integrated into the weapon system acquisition process--was clearly defined and implemented.

The Army must effectively integrate MPT into the weapon systems acquisition process to ensure that when weapon systems are deployed, they can be satisfactorily operated and maintained. Effective MPT integration is particularly critical during the early phases of the acquisition process where the stage is set for the bulk of a system's life-cycle costs. Studies show that about 70 percent of a system's life cycle costs are determined by decisions made during the first phase of the acquisition process. As development proceeds and the design becomes more set, changes to ensure that trained personnel can operate and maintain the system are more difficult and costly. A 1980 Army study identified many basic MPT problems, and many of these same problems were also cited in several 1984 studies by Army organizations.

We believe the Army's lack of centralized MPT management impedes its MPT improvement efforts. Also, the Army needs to establish detailed procedures and controls to ensure that manpower and personnel issues relating to weapon systems are identified, fully developed, analyzed, and resolved.

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ARMY'S EFFORTS TO RESOLVE MPT PROBLEMS

Many studies by the Army, GAO, and others have identified major systemic MPT problems that have adversely affected the Army's ability to effectively integrate MPT into the weapon systems acquisition process. However, Army initiatives to address the problems have lacked an overall plan and a focus. Problems identified in a 1980 Army study were again identified in 1984 by several Army organizations. These problems included the following:

--No one was in charge of implementing MPT integration.

--MPT requirements were not being identified early enough in the acquisition process to influence system design.

--The Army was not clearly defining weapon system MPT needs for the contractors designing and developing weapon systems.

--Contracts did not include incentives for the performance of good MPT planning.

Several studies made or sponsored by the Army show that these problems and others have caused the Army to field systems which were inadequate in terms of support and operation. Examples of these follow.

--Maintenance personnel needs for the Black Hawk helicopter system were underestimated. As a result, the Army had to undertake new recruitment initiatives to meet these needs after the system was fielded.

--Maintenance training programs for the M-1 tank were not developed before the tank was fielded. As a result, the Army will implement the programs without formal evaluation of their effectiveness.

--Flight simulator development for a new helicopter was poorly managed. As a result, with one-third of the helicopters already produced, only one flight simulator was available, adversely impacting training.

The Army now has many MPT improvement efforts under way. For example, Army components are (1) clarifying the responsibilities of several key officials in the acquisition process, (2) testing techniques to identify MPT needs early enough in the acquisition process to influence system design, and (3) developing the methodology to clearly define Army needs to the weapon systems contractors.

Because no one organization has responsibility for producing a single comprehensive plan for MPT improvement, three of the Army's main organizations with MPT responsibilities--the Army Materiel Command (AMC), the Office of the DCSPER, and the U.S. Army Training and Doctrine Command--are independently pursuing their own versions. Although they have not operated in total isolation, these organizations have not sufficiently coordinated their efforts. This has resulted in duplication of effort. For example, as part of their individual planning efforts, both AMC and the Office of the DCSPER independently reviewed previous MPT studies, developed lists of MPT problems, and verified that the problems they had listed still existed. (App. III summarizes the three components' MPT responsibilities.)

DCSPER'S ROLE NEEDS TO BE CARRIED OUT

The DCSPER is required by Army regulation to assess the adequacy and timeliness of manpower and personnel planning, assess the adequacy of human factors engineering analyses, and ensure that all manpower and personnel problems and issues relating to weapon systems are identified. However, the Office has not issued detailed instructions for carrying out these responsibilities.

The Office of the DCSPER staff officers responsible for these functions are tasked with preparing the DCSPER or his representative for the Army Systems Acquisition Review Council (ASARC) milestone decision reviews. At these reviews, top Army managers (including the DCSPER or his representative) develop a recommendation to the Secretary of the Army on whether a weapon system should proceed to the next development phase. The methodology for preparing the DCSPER's position for an ASARC is left to the discretion of the staff officer. Each staff officer decides what MPT aspects to consider and what reports or other information to analyze. Staff officers are not required to receive and are not always aware of several key reports, generated by other Army organizations, that contain analyses or assessments of MPT.

CONCLUSIONS AND RECOMMENDATIONS

Most problems with integrating MPT considerations into the weapon systems acquisition process identified in a 1980 Army study still remain. Various Army organizational components have initiated actions to correct these problems. This has resulted in a duplication of efforts since there is no overall plan or focus. DCSPER, as the office responsible for MPT integration into the weapon system acquisition process, needs to actively develop and implement an Army-wide plan.

DCSPER's role in the integration of MPT into weapon systems has been clearly defined. However, the lack of detailed procedures and controls for carrying out these responsibilities impedes its efforts to successfully integrate MPT into the acquisition process.

To improve MPT integration and ensure a single comprehensive MPT improvement plan, we recommend that you

--ensure that the Deputy Chief of Staff for Personnel has the authority and responsibility to develop and implement a comprehensive Army-wide plan for addressing MPT problems and

--ensure that the Deputy Chief of Staff for Personnel then establishes and implements detailed procedures and controls for ensuring that all manpower and personnel issues relating to weapon systems are identified, fully developed, analyzed, and resolved.

Our findings are discussed in more detail in appendix I.

AGENCY COMMENTS AND OUR EVALUATION

On August 7, 1985, the Department of Defense (DOD) provided official oral comments on a draft of this report. DOD agreed with our findings and recommendations and advised us of the following actions:

--The Army has authorized the DCSPER to develop a coordinated staff position and publish regulatory guidance which will outline responsibilities for all agencies involved in the integration effort. The Army refers to this effort as the manpower and personnel integration (MANPRINT) program. It defines MANPRINT as a comprehensive technical effort to integrate into materiel development and acquisition (to ensure system effectiveness) all relevant information concerning human factors engineering, manpower, personnel, training, system safety, and health hazards.

--A Senior Executive Service position has been established in the Army's Directorate of Personnel Plans and Systems to provide leadership, policy direction, and technical expertise for the MANPRINT program.

--Policy establishing specific responsibilities for MANPRINT integration throughout the acquisition process is being developed. Also, numerous other policy regulations have been and are being revised to improve MPT integration.

--The Army is developing a training program for the Office of the DCSPER staff officers who have responsibilities for MPT integration. Also, the staff officers now report directly to the Office of the DCSPER's general officer representative to the ASARC. Further, the Army has provided them with a format for developing issues for the ASARC representative which describes the type of data needed and how to obtain it.

We believe that the actions outlined above, if adequately implemented, will be responsive to our recommendations.

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As you know, 31 U.S.C. § 720 requires the head of a federal agency to submit a written statement on actions taken on our recommendations to the House Committee on Government Operations and the Senate Committee on Governmental Affairs not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

We are sending copies of this report to the Chairmen of the above Committees; the House and Senate Committees on Armed Services; the Director, Office of Management and Budget; and the Secretary of Defense.

Sincerely yours,

Bill W. Thurman

for Frank C. Conahan
Director

THE ARMY CAN BETTER INTEGRATE MANPOWER, PERSONNEL, AND TRAINING INTO THE WEAPON SYSTEMS ACQUISITION PROCESS

INTRODUCTION

Manpower, personnel, and training (MPT) includes aspects of "human factors engineering," which the Army defines as a comprehensive technical effort to integrate into Army doctrine and materiel development and acquisition all relevant information concerning, among other things, human characteristics, skill capabilities, performance, training, and manning implications. The intent of the engineering is to ensure that weapon systems can be satisfactorily operated and maintained.

In recent years, the Army's need to integrate MPT into its weapon systems acquisition process has become more critical. This is due to the heavy demands placed on manpower, personnel, and training by the Army's large force modernization effort, which will introduce many new and improved systems over the next several years.

The Army's current force modernization effort is the most ambitious it has ever undertaken. By 1990, the Army will have reorganized its entire force from the unit to the theater level and will have introduced over 400 new or improved systems.

A necessary step in coping with the heavy demands on MPT is the accurate and timely determination of the number of people and skills needed, both by the individual and in the aggregate, to operate and maintain new and improved equipment when fielded. To do this, the Army has an elaborate materiel acquisition life cycle system management model and regulations and instructions which address the MPT issues to be considered during system development and acquisition.

Several Army organizations have responsibilities pertaining to the integration of MPT into the weapon system acquisition process. The Army Training and Doctrine Command (TRADOC), the Army Materiel Command (AMC), and the Army Headquarters staff are key players in this process. (See app. III.)

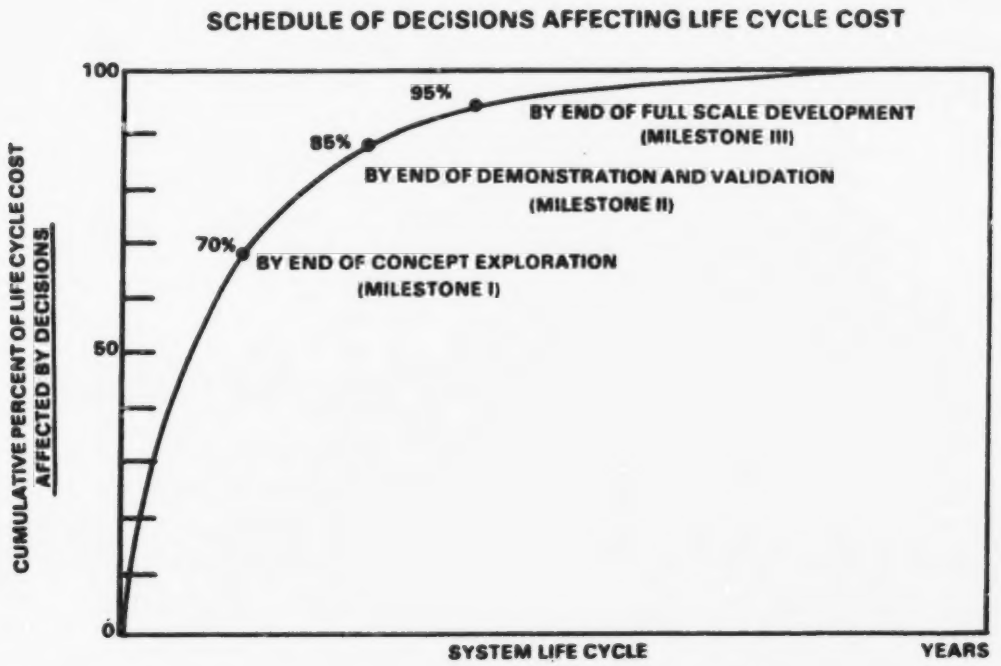
Weapon system life cycle and MPT

A weapon system's life cycle is its total life span commencing with program initiation and extending through the operational phase to its eventual retirement from the

inventory. For management purposes, a system's acquisition life cycle is divided into four phases: concept exploration, demonstration and validation, full-scale development, and production and deployment. There are four key decision points--Mission Needs Determination and Milestones I, II, and III--that mark the end of one phase and the beginning of the next, as shown in figure I.1. At each decision point, the system is reviewed to determine whether it should proceed to the next phase. The Army Systems Acquisition Review Council (ASARC) is the group of top managers which reviews major systems and designated acquisition programs and recommends action to the Secretary of the Army for decision. On some major systems, both the ASARC and the Office of the Secretary of Defense conduct one or more of the milestone reviews.

Identifying and analyzing a system's MPT needs are necessary during each phase, but they are particularly critical during the concept exploration phase because this phase has the greatest effect on the system's life cycle costs. Many studies of life cycle and weapon system supportability show that about 70 percent of a system's life cycle costs are determined by decisions made prior to milestone I, as shown in figure I.1.

Figure I.1



SOURCE: Proceedings from National Security Industrial Association Symposium on Navy Systems Acquisition, October 27-28, 1977

After the concept exploration phase, as development proceeds and the design becomes more set, changes to ensure that trained personnel can operate and maintain the system are more difficult and costly.

OBJECTIVES, SCOPE, AND METHODOLOGY

Our objectives were to determine whether

--the Army had established an overall plan and a focus for correcting its MPT problems and whether the Army's corrective actions were adequate and

--the Deputy Chief of Staff for Personnel's (DCSPER) role in the integration of MPT into the weapon systems acquisition process was clearly defined and implemented.

We interviewed officials from the following organizations to determine (1) what their MPT integration responsibilities were, (2) how the MPT integration process worked and who the key officials were in that process, (3) what they felt the MPT problems were, and (4) what actions the Army had planned and taken to correct MPT problems and their status:

--Army Headquarters, Washington, D.C.;

--TRADOC Headquarters, Fort Monroe, Virginia;

--TRADOC's Soldier Support Center, Fort Benjamin Harrison, Indiana;

--TRADOC's Soldier Support Center-National Capital Region, Alexandria, Virginia;

--AMC Headquarters, Alexandria, Virginia;

--AMC's Materiel Readiness and Support Activity, Lexington, Kentucky;

--U.S. Army Research Institute for the Behavioral and Social Sciences, Alexandria, Virginia;

--U.S. Army Logistics Evaluation Agency, New Cumberland Army Depot, Pennsylvania; and

--U.S. Army Human Engineering Laboratory, Aberdeen Proving Ground, Maryland.

Also, to identify problems experienced by the Army in integrating MPT into weapon systems, we analyzed recent Army, GAO, and other organizations' studies. Most of these were issued between 1980 and 1984. We reviewed regulations, procedures, mission statements, and other documents to determine the functions, responsibilities, and authorities of the DCSPER and other Army organizations that implement, coordinate, and monitor or are otherwise involved in the MPT process. Also, we analyzed documents to determine the status of the Army's MPT improvement efforts. Because the Army's major improvement efforts were at such an early planning phase at the time of our review, we could not fully evaluate their adequacy. We conducted our review from May to October 1984 in accordance with generally accepted government auditing standards.

ARMY'S EFFORTS TO RESOLVE MPT PROBLEMS

Although studies by the Army, GAO, and others identified major MPT problems that adversely impacted the Army's ability to effectively integrate MPT into weapon systems' life cycles, the Army's corrective actions were initiated without an overall plan and focus. As a result, many problems identified several years ago still remain.

Moreover, although the Army has recently recognized its need for a comprehensive approach to improve MPT, no single organization has responsibility for producing a single, comprehensive Army-wide plan. At the time of our review, three Army organizations--Office of the DCSPER, AMC, and TRADOC--were developing their own versions. This approach results in duplication of effort and is less likely to ensure that MPT problems will be corrected.

The Army is aware of many MPT problems

Over the past 4 years, the Army has used reports prepared by GAO and others and has prepared or sponsored over 50 studies to identify its MPT problems and to study methodologies for improvement. (See app. II.) However, many of the problems still remain.

For example, a 1980 study prepared for the Army Chief of Staff identified many problems with the Army's MPT integration, including these examples.[1]

--No one was in charge of MPT integration.

--MPT requirements were not being adequately identified early in the development process.

--Techniques for identifying accurate and timely estimates of MPT requirements needed to be improved.

--MPT requirements were not being translated into contractor design requirements.

--Contractors had no incentives to perform good MPT integration.

--Individuals involved in weapons development needed better MPT training.

Subsequent Army studies showed that MPT problems had caused the Army to field weapon systems which were inadequate in terms of support and operation. Examples of problems in fielded systems, as cited in 1984 Army reports, are described below.

--Maintenance personnel needs for the Black Hawk helicopter were underestimated. As a result, the Army had to undertake new recruitment initiatives to obtain the needed personnel after the system was fielded.

--Flight simulator development for the Black Hawk was poorly managed (e.g., changes in the Black Hawk's design specifications were not considered). Therefore, with one third of the helicopters already produced, only one flight simulator was available, adversely impacting training.

--Launcher/loader crew skill requirements for the Multiple Launch Rocket System were not analyzed. As a result, the Army did not know the required skill level or what the consequences would be if skills were lowered.

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[1]George S. Blanchard and Walter T. Kerwin, Man/Machine Interface - A Growing Crisis, Army Top Problem Areas, Discussion Paper No. 2 (Aug. 1980).

--Maintenance training programs for the M-1 tank were not developed before the tank was fielded. Therefore, the training programs will be implemented without formal evaluation of their effectiveness.

--A task and skill analysis was not performed before deciding which skills were needed to operate and maintain the Army's new communication switches. As a result, the Army had to make, late in the cycle, significant changes in the military occupational specialties and training requirements for the system. These late modifications caused turbulence in the Army Signal personnel and training communities.

The Army's attempts to improve MPT are fragmented

Several Army studies state that Army steps taken to address MPT problems lacked management support, were undertaken at different times by different organizations, and were seldom coordinated with other MPT initiatives. For example, in response to the Army's MPT improvement efforts, the August 1980 study prepared for the Army Chief of Staff said:

> "The Army has made some progress in dealing with this problem. Many efforts are underway. However, these efforts, while representing steps in the right direction, are fragmented, based on reactions rather than vision, and, to a large extent, individually initiated."

Although the Army was using several Army and other studies available on MPT, the Army had not developed a comprehensive plan for addressing the MPT issues which had been identified.

During our review, the Army continued several initiatives it had begun prior to our review and initiated several additional actions to correct MPT problems. Because the Army initiatives were in their early stages, we could not fully evaluate them. They included (1) improving accountability for MPT integration, (2) adopting an analytical technique used by the Navy for identifying MPT requirements, (3) initiating action to improve the information to be included in contractor requirements documents, (4) initiating action to improve MPT training, and (5) identifying key points where MPT should be emphasized in the Army's life cycle system management model. These initiatives are briefly described below.

--As a step toward holding their principal weapons development personnel accountable for MPT integration into the weapon systems, AMC and TRADOC, respectively, were revising the program manager and TRADOC System Manager's statements of responsibilities to more clearly articulate these responsibilities.

--To improve its analytical techniques for identifying MPT requirements, the Army converted the Navy's HARDware vs. MANpower (HARDMAN) analysis technique for its own use. TRADOC's Soldier Support Center-National Capital Region is responsible for overseeing the Army's HARDMAN. Through a contract, the Army applied HARDMAN to 5 systems during fiscal year 1984 and is planning to apply it to 10 more systems during the fiscal years 1985-86 timeframe. The HARDMAN applications cannot be evaluated until much later, when the HARDMAN MPT estimates can be compared with the systems' actual requirements.

--The Office of the DCSPER made a change to an existing contract to develop the minimum essential elements of information for several requirements and contractual documents--operational and organizational plans and the required operational capability documents, as well as the requests for proposals. Also, the Army Research Institute conducted a research project to develop model requests for proposals for the concept exploration and the demonstration and validation phases of weapons development. At the time of our review, AMC was studying the models.

--In June 1984, the Office of the DCSPER initiated a change to an existing contract which requires the contractor to develop a training package for a staff officer MPT qualification course and to train instructors. Also, an Office of the DCSPER official said that office was considering adding MPT modules to several other courses e.g., the Program Manager Course, the Defense Systems Management Course, and the Materiel Acquisition Management Course.

--On July 18, 1984, AMC established a Human Factors Engineering Task Force which, among other things, performed a study to identify key points within the Army's life cycle system management model at which MPT should be emphasized. At the time of our visit, the task force's study results were still in draft form and were not available for our review.

Because no single organization has responsibility for producing a comprehensive Army-wide MPT improvement plan, the Office of the DCSPER, AMC, and TRADOC are pursuing their own versions. This approach results in duplication of effort. For example, in developing their individual plans, both AMC and the Office of the DCSPER started by reviewing previous MPT studies, developing a list of MPT problems, and verifying that the problems they had listed still existed. At the time of our review, these three organizations' Army-wide efforts were in such early stages that we could not evaluate them. Each is described below.

The Office of the DCSPER Army-wide planning effort

In June 1984, the Vice Chief of Staff tasked the Office of the DCSPER to review various aspects of MPT in the Army. The Office formed a study group to decide what specifically should be done. The group was composed of individuals from the Office of the DCSPER's Military Personnel Management and Personnel Plans and Systems Directorates, TRADOC's Soldier Support Center-National Capital Region, the Army Research Institute, and the Army Human Engineering Laboratory. The study group decided that a contractor should develop an Army-wide plan to improve MPT integration, and the group wrote the statement of work for the contract.

Because the Vice Chief wanted to get results as quickly as possible, the Office of the DCSPER amended an existing Office of Personnel Management contract for analytical support services by adding the work the study group had identified. The change was signed on August 29, 1984.

The contractor is to identify why the present process is inadequate and what needs to be done to ensure proper MPT consideration in systems acquisition. The contractor started by reviewing previous MPT studies and current policy documents and developed a list of MPT problems. The validity of the list was verified through meetings with the study group. On October 31, 1984, the contractor delivered its final draft of this documentation review.

The contractor's next task is to redesign the Army's life cycle system management model from an MPT perspective. After it develops the revised model, the contractor will develop a plan for implementing the revisions on a matrix, providing a list of tasks and the organization responsible for performing each task.

AMC Army-wide planning effort

In July 1984, AMC established a Human Factors Engineering Task Force to (1) analyze MPT deficiencies, (2) develop a corrective action plan, and (3) oversee its successful implementation. The task force was made up of personnel from various AMC elements.

As did the Office of the DCSPER, the task force reviewed previous MPT studies and current policy documents and then developed a list of MPT problems. Field locations were visited to verify the problems still existed. By late August 1984, the task force had developed a general action plan.

To obtain the cooperation needed to implement the plan, the task force conducted a series of plan briefings for several officials, including the DCSPER and the Commanding Generals of AMC and TRADOC. While the briefings were taking place, the task force developed a matrix of 150 major MPT action items and a series of tasking letters to be sent to all 31 Army organizations involved in MPT. The letters delineate those major tasks which fall within each organization's areas of responsibility and ask the organizations to develop more details on how they plan to perform these tasks. The Commanding General, AMC, signed the tasking letters on October 19, 1984.

The individual detailed plans were to be returned to the AMC task force by November 20, 1984; however, in December 1984, a task force official said the plans were just starting to come in. From the individual plans, the task force intends to build an Army-wide master plan. It will be reviewed and approved by AMC's Materiel Acquisition Review Board. The Board held its first meeting during March 1985 and plans to conduct two additional in-process reviews of the MPT improvement efforts. These reviews are tentatively scheduled for late June 1985 and September 1985. For this purpose, the Board's regular membership will be augmented by representatives from the other organizations submitting plans if the organizations want to send representatives.

An AMC official said he would expect the master plan to incorporate all ongoing MPT improvement efforts. He had no estimate of how long it would take to completely implement the plan; however, another official said AMC hoped to have the plan institutionalized and running on its own after the third Board meeting, which is tentatively scheduled for March 1986.

TRADOC Army-wide planning effort

In September 1984, a TRADOC MPT steering committee was formed to develop a master plan for MPT integration. The steering committee included officials from several TRADOC organizations (i.e., the Director of the Soldier Development Directorate and representatives from the Offices of the Deputy Chiefs of Staff for Training, Testing and Evaluation, and Combat Development; the Logistics Center; the Soldier Support Center-National Capital Region; and the Combined Arms Center). This committee produced a draft master plan in October 1984.

The Office of the DCSPER needs to carry out its role in MPT integration

The DCSPER is responsible for recommending the Army position on MPT to the ASARC. Before each ASARC milestone decision review, the DCSPER must

--assess the adequacy and timeliness of manpower and personnel planning,

--assess the adequacy of human factors engineering analysis, and

--ensure that manpower and personnel problems and issues are identified.

According to an Office of the DCSPER official, this Office carries out those responsibilities through the ASARC process. However, the Office lacks detailed procedures and controls for making such a determination. The Office of the DCSPER's personnel systems staff officers (PERSSOs) are responsible for carrying out the above responsibilities, but the Office has not defined how the PERSSOs are to "assess" and "ensure." The PERSSOs use their own judgments as to precisely what tasks are needed to fulfill their responsibilities and how to perform them.

The Office has issued a handbook to outline the PERSSO's responsibilities and to provide guidance and information to the PERSSO. Rather than repeating the regulation statement of the Office's responsibilities before the ASARC milestone decision review, the handbook states:

> "Like many tasks that the PERSSO does, the main responsibility is to provide a personnel supportability assessment for the system to ensure that the fielding of the system includes the right soldiers at the right place at the right time with the right skills."

The handbook provides a format, called the "boilerplate," to develop the PERSSO's overview assessments. The handbook includes information for assessing a weapon system's manpower costs, skill requirements, and similar MPT considerations; however, it does not go into the methods the PERSSOs are to use for the assessment. The boilerplate is a new management tool and had been prepared for only one of the five systems that went to an ASARC milestone decision review in fiscal year 1984 (i.e., the 155-mm. self-propelled howitzer improvement program).

Several organizations with MPT monitoring responsibilities generate reports, studies, and analyses which contain important MPT information. Examples include the Human Engineering Laboratory, the Logistics Evaluation Agency, the Army Research Institute, and the Operational Test and Evaluation Agency. We believe that two types of reports generated by these organizations are particularly important and that regular receipt and analysis are critical to the Office of the DCSPER's development of the Army's MPT position. The reports are the Human Engineering Laboratory's human factors engineering analyses (HFEA) reports and the Logistics Evaluation Agency's integrated logistics support (ILS) review.

The HFEA reports are used to identify critical or major problems that could preclude the weapon system's proceeding into the next phase of the acquisition process. ILS reviews, which include an assessment of MPT, are made to determine the adequacy of logistics plans, resources, and support-related parameters at each acquisition milestone. These analyses and the HFEA reports could have major ramifications in developing the Army's MPT position. On the basis of our interviews with Office of the DCSPER representatives, the PERSSOs do not automatically receive or are not always aware of all HFEA reports and ILS reviews available to them.

A LIST OF REPORTS PREPARED OR SPONSORED BY THE ARMY AND OTHER REPORTS THE ARMY HAS USED TO IDENTIFY ITS MPT PROBLEMS AND TO STUDY METHODOLOGIES FOR IMPROVEMENT

Army Studies

Application of the HARDMAN Methodology to the Enhanced Self-Propelled Artillery Weapon System, Vols. 1 and 2, Report R-368U, Dynamics Research Corp., Wilmington, Mass., Apr. 1981.

Application of the HARDMAN Methodology to the Army Remotely Piloted Vehicle (RPV), Vols. 1 and 2, Report R-408U, Dynamics Research Corp., Wilmington, Mass., Jan. 11, 1983.

Arabian, Jane M., et al., Reverse Engineering of the Multiple Launch Rocket System: Human Factors, Manpower, Personnel and Training in the Weapons System Acquisition, Process, Army Research Institute, Alexandria, Va., June 1984.

A Study to Identify and Consolidate Manpower, Personnel and Training Requirements for Materiel Systems at ASARC Milestones, Army Research Institute, Alexandria, Va., Aug. 1981.

A Study to Validate a Sample Set of Questions and the General Approach in Their Development for an Army Systems Acquisition Review Council (ASARC) III System, Army Research Institute, Alexandria, Va., Nov. 1981.

Balcom, John L., and Mannle, Thomas E., Jr., Estimating the Manpower, Personnel, and Training Requirements of the Army's Corps Support Weapon System Using the HARDMAN Methodology, Army Research Institute, Fort Sill, Okla., Sept. 1982.

Bonder, Seth, et al., Exploratory Research on Personnel Long-Range Planning, Army Research Institute (ARI) Research Note 82-23, ARI, Alexandria, Va., 1982.

Bonder, Seth, et al., Integrating MPT into the System Acquisition Process--Implementation of the Depuy-Bonder Approach, Army Research Institute Research Note 84-73, Vector Research, Inc., May 1984.

Bonder, Seth, A Review of Army Force Modernization and Associated Manpower, Personnel and Training Processes, Vector Research, Inc., Army Research Institute Research Note 81-6, Jan. 1981.

APPENDIX II

Brown, L., et al., MIST: Front End Analysis Compendium Report No. 0002Au, Dynamics Research Corp., Wilmington, Mass., 1982.

DARCOM Study on Integrated Logistic Support, Materiel Readiness Support Activity, Lexington, Ky., Sept. 1982.

Daws, Robert N., Jr., et al., Reverse Engineering of the STINGER Air Defense Missile System: Human Factors, Manpower, Personnel, and Training in the Weapons System Acquisition Process, Army Research Institute, Alexandria, Va., June 1984.

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Force Modernization: Relating Human Capability to System Performance, Kinton, Inc., for U.S. Army Soldier Support Center, Fort Benjamin Harrison, Indiana, Oct. 31, 1980.

Hartel, Christine R., and Kaplan, Jonathan, Reverse Engineering of the BLACKHAWK (UH-60A) Helicopter: Human Factors, Manpower, Personnel, and Training in the Weapons Systems Acquisition Process, Army Research Institute, Alexandria, Va., June 1984.

HMPT Master Plan, Personnel Integration Master Plan (Draft), U.S. Army Training and Doctrine Command, Fort Monroe, Va., Oct. 12, 1984.

How We Will Launch MANPRINT: Action Plan, Briefing, U.S. Army Materiel Command, Alexandria, Va., Oct. 19, 1984.

Human Factors Engineering Analysis for M1E1 Tank ASARC/DSARC III, U.S. Army Human Engineering Laboratory, Aberdeen Proving Ground, Md., Apr. 16, 1984.

Human Factors, Manpower, Personnel and Training Clauses for the Concept Exploration and the Demonstration and Validation Requests for Proposal, Army Research Institute, Alexandria, Va., Sept. 1984.

Integration of Manpower, Personnel and Training Issues From the Materiel Systems Acquisition Process Into the Planning, Programming and Budgeting System, Technical Report 526, Army Research Institute, Alexandria, Va., Mar. 1981.

Kane, J. J., Personnel and Training Subsystem Integration in an Armor System, Army Research Institute Research Report 1303, Science Applications, Fort Knox, Ky., Jan. 12, 1981.

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SUMMARY OF TRADOC'S, AMC'S AND THE ARMY STAFF'S RESPONSIBILITIES FOR MPT INTEGRATION

TRADOC is the Army's principal combat developer, doctrine developer, trainer, and user representative. TRADOC responsibilities include

--developing future Army concepts for doctrine, organizations, training, and materiel;

--preparing requirements documents for new Army materiel and training devices;

--developing new or modified organizational designs for ensuring optimal use and adequate manning and support for existing and developmental equipment;

--monitoring research, development, testing, and evaluation of new or modified equipment for training, manpower, personnel, logistics, and maintenance implications;

--monitoring the development of training devices and their introduction into the inventory; and

--ensuring concurrent establishment of operator and support personnel when equipment is distributed to the field.

As the Army's principal materiel developer, AMC's responsibilities include

--developing advanced materiel concepts for consideration by the Army in formulating doctrine, organization, capability goals, and materiel requirements;

--participating with the combat developer in the investigation of the need for a new or improved mission capability;

--determining, in coordination with the user representative, the need for system support equipment of all types, to include personnel training equipment; and

--ensuring that human factors issues are addressed throughout the materiel acquisition process.

Among the Army Staff, the Deputy Chief of Staff for Operations and Plans (DCSOPS), the DCSPER, and the Deputy Chief of Staff for Logistics (DCSLOG), have some specific

responsibilities related to integrating MPT into weapon system acquisition. DCSOPS' responsibilities, for example, include (1) monitoring new equipment and related support functions, (2) coordinating unresolved new equipment training issues with Army Staff agencies as they are surfaced by materiel developers, (3) reviewing and approving new equipment training plans, and (4) ensuring the distribution of sufficient equipment to training developers to support timely training development. Also, DCSOPS acts as the focal point for coordinating force modernization actions and is responsible for bringing together several key officials (e.g., program managers and TRADOC system managers) to ensure that the fielding of a materiel system can be supported.

The DCSPER has the Army's general staff responsibility for determining the validity of estimated manpower requirements of a proposed system. This includes (1) ensuring that all manpower and personnel issues relating to new or improved doctrine, organizations, and materiel are identified, fully developed, and analyzed and (2) recommending the Army position on MPT to the ASARC. For this latter responsibility, before the ASARC milestone decision review, the DCSPER must

--assess the adequacy and timeliness of manpower and personnel planning,

--assess the adequacy of human factors engineering analysis, and

--ensure that manpower and personnel problems and issues are identified.

In addition, DCSLOG is responsible for monitoring the Army's integrated logistics support program, of which MPT integration is an important element. Two program objectives are to ensure that

--all elements of manpower, training, and logistics are planned, developed, tested, evaluated, procured, and deployed concurrently with systems and

--the user is prepared to operate and support systems when fielded.

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